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NAVY DEPARTMENT

BUMED NEWS LETTER

a digest of timely information

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Influenza: Since the disastrous experience with influenza in the pandemic associated with World War I, this disease has remained notorious for engendering widespread fear whenever it appears, even in mild form. It is not known which virus served as the etiological agent during the great pandemic, but certainly the secondarily invading streptococcus was an important factor in the high mortality which prevailed.

Influenza should not be feared today as in the past, for with present therapy the high case mortality rate for pneumonia and streptococcal complications can be reduced effectively. The general trend during the past twenty years has been toward mild epidemics whether caused by the A or B type of virus.

Immunization. In recent years a chick embryo vaccine of A and B influenza viruses has been developed which will cause a rise in homologous antibody titers; however, it is not the final answer to the problem for the following reasons:

(a) The immunity appears to be of relatively short duration, probably persisting for less than a year.

(b) The immunity is not optimal until about two weeks following the injection of the immunizing material.

(c) There is the possible danger of sensitization to egg and embryo tissue proteins as a result of frequent injections of such material. Serious allergic reactions with the present vaccine have been considerable. Local reactions are to be expected in from 10 to 20 per cent or more of personnel who receive the vaccination, and constitutional reactions associated with fever, malaise, etc., occur in an appreciable number of vaccinated persons.

(d) Finally, present evidence indicates that the value of the vaccine for the prevention of influenza A in any group is only partial; its protective value against influenza B has not yet been clearly defined.

It is the policy of the Bureau of Medicine and Surgery that influenza vaccine will not be administered to naval personnel as a routine, annual procedure. Vaccination against influenza during the 1946-47 season, however, will be undertaken during the incipient stages of an epidemic, should an actual outbreak occur, and provided the outbreak appears serious enough to warrant the procedure. The decision to vaccinate in the continental limits of the United States will be made by the Bureau of Medicine and Surgery. Outside the continental limits of the United States, the decision to vaccinate will rest with Naval District Commandants or Area Commanders.

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The vaccine is not listed in the Catalog of Navy Material, Bureau of Medicine and Surgery Section. Should the Bureau of Medicine and Surgery decide to vaccinate within the continental United States, instructions for vaccine procurement will be issued at the time of the decision. Requests for vaccine for extra-continental use when the decision to vaccinate is made by the District Commandant or Area Commander should be submitted to the Bureau of Medicine and Surgery, accompanied by information stating the basis for the decision to vaccinate.

It is planned to continue and extend the studies of intradermal influenza vaccination conducted at Treasure Island by personnel of Epidemiology Unit No. 82. The work of this Unit indicated that a small intradermal injection of the vaccine was much superior to larger amounts administered subcutaneously so far as antibody response is concerned.

Clinical diagnosis. During the fall, winter, and spring seasons, influenza, catarrhal fever, and septic sore throat are frequently confused. In the interests of more accurate diagnosis and treatment, excerpts from an article published in the U. S. Naval Medical Bulletin in 1944 are set forth here as a short "refresher" in their differential diagnosis.

> "The onset of epidemic influenza is sudden without premonitory symptoms. The first symptoms are general, consisting of chills, headache, malaise and muscular pains. Later, respiratory signs may develop with mild coryza, frequently epistaxis, very mild sore throat and a dry, unproductive, short cough. The patient may complain of a feeling of tightness in the chest. The temperature rises rapidly and is usually spiking in character with daily spikes for three to four days, after which it remains normal unless complications occur. A diphasic type of temperature curve may occur. The constitutional symptoms continue to dominate the picture throughout. Physical signs are slight or absent in spite of the fact that the patient appears to be and feels quite ill. The typical facies in a severe case is heavy and drowsy with drooping eyelids, glistening eyes, dusky facial flush and slightly cyanosed lips. The tongue may be furred; the voice is husky but not hoarse. There is usually a pharyngitis limited to the posterior pharyngeal wall and characterized by large vessel injection, a tendency to dryness, a red granular appearance, no exudate and very little subjective throat soreness. There may be a few rhonchi or rales at the bases toward the end of the fever. The so-called 'spine sign' characterized by stiffness of the spine is a frequent result of the severe muscular pains in the large muscle masses of the

back. The commonest chest complication is a characteristic bronchitis. On the whole, cases are remarkably uniform in clinical appearance and there is no tendency to admixture with other diseases such as tonsillitis. The most important variations from the typical cases are those with chest complications.

"In contrast to the uniform picture of epidemic influenza, the febrile catarrhs exhibit a more variable course. The onset is usually insidious with a premonitory 'cold' and cough for several days. Respiratory symptoms usher in the disease and sore throat and cough dominate the picture. The cough is usually paroxysmal and productive with substernal soreness over the trachea. Hoarseness of the voice frequently develops. The constitutional symptoms, although present, are overshadowed by these respiratory symptoms. The fever has no characteristic course. The patient presents the appearance of having a 'heavy cold.' The nose is obstructed and there is both a tonsillitis and pharyngitis, with intense capillary injection and exudation of mucus, mucopurulent or follicular material. The clinical picture varies greatly from a predominating coryza to a tonsillitis, laryngo-tracheitis, or acute bronchitis.

"Septic sore throat may also be confused with influenza at times because of the sudden onset with chill, malaise, and muscular pains. However, the severe soreness of the throat and the marked tonsillar involvement and exudate should disclose the nature of the condition.

"It has been the custom to lean heavily upon the white blood count in the differential diagnosis of influenza. A marked leucopenia is usually considered a necessary feature of the disease. However, a review of the literature describing the various influenza epidemics of this century reveals that leucopenia is an inconstant accompaniment of the disease. The vast majority of white blood counts have fallen within the 3,000-14,000 limits given as the normal limits of white blood counts by Price Jones. The average white count in most epidemics has been about 7,000. Rather than a leucopenia, an absence of leucocytosis seems to be a characteristic of influenza, but even this may be misleading in the differential diagnosis since many cases of proved influenza during epidemics show a leucocytosis especially when there are complications of foci of pyogenic infection." (Preventive Medicine Div., BuMed)

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Application of DDT by Aircraft: The application of DDT by aircraft, as now practiced, is too often merely an expensive gesture. The opinion of one entomological observer in overseas bases recently is that the efficiency of application is often only 1 per cent, whereas under ideal conditions, perhaps 30 per cent of the dispersed DDT will reach the desired target.

Certain conditions regularly contribute to poor results. Among these are: (1) too great an altitude, (2) high ground temperatures, (causing up-drafts), (3) high wind velocity, (4) wrong time of day, (5) wrong droplet size, and (6) erratic flight pattern.

The pilot must be experienced in spray operations as well as the spray pattern produced by the aircraft, including the amount of drift under different altitudes and wind velocities. The wind velocity, temperature, and terrain determine the optimum flight altitude; and the life stage and species of mosquito to be controlled, type of cover, DDT concentration, and weather conditions determine the amount and optimal droplet size of spray to apply. Flights as low as 35 feet above ground, when safety permits, are desirable to bring the spray down without excessive drift when winds are high, but rough terrain with heavy cover may require altitudes up to 150 feet for safety, with changed dosage and droplet size. Low wind velocities aid in laying down accurate swaths; and a breeze of from 3 to 5 miles per hour drifts the spray particles and causes successive swaths to overlap, which is desirable. Wind conditions are usually most favorable in the early morning and at this time there are no thermal up-drafts created by the heating of the earth's surface by sun rays. Where conditions permit, the spray applications should be made by flying cross wind. This gives a wider swath and insures more equal distribution of spray by overlapping. Anopheline mosquitoes are successfully controlled by dispersal of from 0.2 to 0.3 pounds of DDT per acre (from 2 to 3 qts. of 5%, or from 1 to 1-1/2 qts. of 10% DDT).

It is imperative that pilots be trained in the application of spray in accurate swaths before they are assigned to airplane spraying. Guidance from the ground is necessary until they have demonstrated the ability to fly even swaths without assistance.

A CNO Restricted letter of 18 November 1946 (Circular Letter No. 46-2182, page 14 of N.D. Semimonthly Bulletin of 30 Nov 1946 and page 20 of Bumed News Letter of 3 January 1947) promulgates certain necessary limitations, and outlines the information required before requests will be considered for permission to use aircraft dispersal of insecticides in the Continental United States. (Preventive Medicine Div., BuMed)

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Duration of Toxicity of Several DDT Residual Sprays under Conditions of Malaria-Control Operations: This study was concerned with the duration of toxicity of several DDT residual sprays, in relation to the length of the "malaria season," and under conditions of malaria-control operations. That a DDT residual spray applied to the inside walls and ceilings of houses is effective in killing Anopheles quadrimaculatus females resting in houses has been demonstrated by the authors and others. Although the authors showed that a DDT residual spray was effective up to the end of their study, a period of approximately 3 months, the limit of the duration of toxicity in relation to the "malaria season" and under conditions of malaria-control operations has not been clearly established. This information is of primary importance in planning and organizing a spraying program and in computing its total cost, because this information determines whether houses should be sprayed once, twice, or more often during the "malaria season."

For the purposes of this study, an area some 7 square miles in extent near the town of Hughes, Ark., was selected because it was typical of the Delta region, traditionally devoted to the culture of cotton, and because of the relatively large adult mosquito population. The area contained 115 houses, of which 18 were vacant and 97 were occupied by 90 white and 330 Negro men, women, and children. The houses were, in general, the conventional plantation type with little or no screening, and were of such construction and in such condition that screening alone would not have been a serious impediment to the access of mosquitoes. The houses were divided into five groups. For comparison, one group of houses was left unsprayed or was sprayed with a xylol-triton mixture. The four other groups were sprayed with four different formulations of DDT.

The four different formulas of DDT used with water added so that the applied spray contained approximately 5 per cent DDT are shown in the following table:

Ingredients	Formula A	Formula B	Formula C	Formula D
DDT	1 part	1 part	3.5 lb	1 part.
Xylol	3 parts	3 parts	10.5 lb	
Triton X100	0.25 part	0.25 part	0.9 lb	0.5 part.
Carbowax 400		0.35 part		
Paint			20 gal	
PD544C				4 parts.
Water	17 parts	18 parts		16.5 parts.

The walls and ceilings of 72 houses were sprayed during the period 21 May to 6 June, when the first A. quadrimaculatus adults could be found in their

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usual daytine resting places. It is at this time in this locality that malaria transmission begins, and this period is therefore the beginning of what is called the "malaria season."

The first inspection was made approximately 4 weeks after spraying, the period of this inspection being from 20 June to 3 July. Six complete inspections were made of practically all the houses in the five groups approximately 4, 6, 9, 12, 14, and 17 weeks, respectively, after spraying. At the time of the last inspection, 19 September to 12 October, the weather had become cooler, and relatively few A. quadrimaculatus adults were found.

For the period of the "malaria season," in this region a period of 17 weeks, the once-sprayed houses harbored significantly fewer mosquitoes than the unsprayed houses.

Little difference was found in the duration of toxicity of the four formulas of DDT residual spray employed, except formula C, which was statistically less effective 14 weeks after spraying. (Pub. Health Reps., Dec. 13, '46 - Knowles and Smith)

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Tests Against Body Lice with Compounds More Toxic Than DDT: G. W. Eddy and R. C. Bushland, of the Department of Agriculture, Bureau of Entomology and Plant Quarantine, carried out a study under contract with the Office of the Surgeon General of the U.S. Army.

Five insecticides were tested by a variety of established laboratory procedures in direct comparison with DDT (1-trichloro-2,2-bis(p-chlorophenyl) ethane). When impregnated on cloth and evaluated by the "beaker test" method, the most toxic materials were "Gammexane" (gamma isomer of hexachlorocyclohexane) and Velsicol 1068 (said to be mixed isomers of a chlorinated hydrocarbon, $C_{10}H_6Cl_8$) which were effective at a concentration of 0.0005 per cent. Hercules 3956 (a chlorinated terpene) and crude "British 666" (mixed isomers of hexachlorocyclohexane) were effective at 0.0025 per cent, but DDT and tertiary-butyl Valone (2-pivalyl-1,3-indandione) did not affect adversely all the test insects at 0.005 per cent. Lice exposed on cloths impregnated with 1 per cent of insecticide were paralyzed within 15 minutes by "Gammexane," crude "British 666," and tertiary-butyl Valone. Velsicol 1068 immobilized the lice within 3 hours, but Hercules 3956 and DDT required 6 hours for complete knockdown.

DDT was ineffective when tested by the arm-and-leg method as an 0.05 per cent powder. The other materials were lethal at that concentration, but

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only "Gammexane" was effective at 0.01 per cent. In arm-and-leg tests of 1.0 and 5.0 per cent powders treatments with crude "British 666" and "Gammexane" were found to lose their insecticidal effects much more rapidly than the other materials. Tertiary-butyl Valone, Hercules 3956, and Velsicol 1068 were about as long-lasting as DDT.

Sleeves of cotton underwear cloth impregnated with 2 per cent of the insecticides were compared for resistance to laundering. The most effective treatment was with Hercules 3956 which remained lethal to lice after four 15-minute boilings in 1 per cent soap solution. DDT lasted almost as well and was superior to Velsicol 1068. Crude "British 666" and "Gammexane" treatments withstood only one boiling, and tertiary-butyl Valone was rendered ineffective by a single laundering.

It was concluded that Velsicol 1068 might prove superior to DDT as an ingredient of louse powders since it killed faster; and that Hercules 3956 might prove better for clothing impregnation since it seemed more resistant to laundering. It was suggested that, if those two materials were found safe for use on human skin, either in powder form or when impregnated in garments, they be studied in further comparisons with DDT. (Abstract of Interim Rep. No. 0-113, Oct. 8 '46)

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The Effect of Di-Isopropyl-Fluorophosphate (DFP) Upon Patients with Myasthenia Gravis: Di-isopropyl-fluorophosphate (DFP) is a compound completely unrelated chemically to neostigmine or physostigmine which has been shown to produce marked inhibition of serum, red cell, muscle, and brain cholinesterase for long periods of time. The rates of restoration of these activities are very slow following administration of DFP, and consequently the effects of DFP are far more prolonged than those of neostigmine or physostigmine. When instilled into the conjunctival sac, 0.1 per cent DFP produces intense miosis which may persist for days or weeks; this action has been found to be of considerable value in the treatment of glaucoma and in overcoming atropine mydriasis (Bumed News Letters of 30 August and 13 September 1946). When given systemically in small doses, its only detectable effects are the inhibition of plasma and then red cell cholinesterase; large doses produce stimulant effects upon skeletal muscle, and still larger doses lead to increased gastro-intestinal activity and (in some patients) effects upon the central nervous system. Because of its pronounced and prolonged anticholinesterase action, it was considered desirable to evaluate its effects upon patients with myasthenia gravis. Many investigators believe that the symptoms of myasthenia gravis are due to an insufficiency of acetylcholine at the myoneural

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junction. This insufficiency of acetylcholine at the myoneural junction may be due to decreased formation of acetylcholine through faulty metabolism, to increased cholinesterase activity at the myoneural junction, or to decreased activity of acetylcholine due to the presence of antagonistic circulating curare-like substances. Therefore, it seemed a matter of great theoretical importance to determine whether this new anticholinesterase agent was capable of increasing muscle strength in myasthenic patients. If DFP could be shown to possess this property, its prolonged action would be important clinically by reducing the number of doses of drug needed and by providing a relatively constant effect throughout its period of action.

DFP was used in the treatment of 7 patients with myasthenia gravis. In evaluating its efficacy, the observations of the patients themselves and objective tests were employed. Whenever possible a comparison was made of the effects of DFP and neostigmine.

Two patients received little or no benefit from DFP, 2 received considerable help, 1 received marked beneficial effects, and in the other 2, the effects were obscured by peculiarities in the natural cycle of the disease. In no case did the objective or subjective improvement following DFP equal or exceed that produced by neostigmine. Attempts to give larger doses of DFP resulted in marked nausea and vomiting, and symptoms referable to the central nervous system.

Discussion: It has been shown by these studies that DFP is capable of increasing muscle strength in some myasthenic patients. Since the only detectable effects of DFP administered in low dosage appeared to be due to its anticholinesterase activity, this re-emphasizes that the fundamental defect in myasthenia gravis is intimately related to a deficiency of acetyl choline and that its symptomatic treatment is likewise related to the maintenance of adequate acetylcholine levels at the myoneural region. This "deficiency" of acetylcholine may be due to inadequate synthesis of acetylcholine or to the presence of an antagonistic curare-like substance; this investigation contributes nothing to strengthen or weaken either of these concepts.

However, it does raise the question concerning the mechanism of action of neostigmine, for ample subjective and objective evidence has been presented in this study to show that DFP does not restore muscle power in myasthenic patients to the same degree that neostigmine does. These observations have been confirmed by Harvey and co-workers who found that intra-arterial injections of DFP into localized areas did not produce the full improvement in strength and in muscle action potentials that neostigmine did. The question arises why DFP, which is capable of lowering plasma and red

cell cholinesterase activity to zero, affords less symptomatic relief to myasthenic patients than does neostigmine. (The decreases in cholinesterase activity following neostigmine, although not determined precisely, were apparently not of this magnitude.) Several explanations may be advanced for this unexpected finding. First, it is possible that the distribution of these compounds in the body is greatly influenced by their physicochemical properties. DFP has a high lipoid solubility whereas neostigmine has a high aqueous solubility. Thus, DFP may readily gain access to nervous tissue in experimental animals, and normal subjects and myasthenic patients receiving DFP may show evidence of central nervous system effects, an action not shared by neostigmine in ordinary doses. It is possible that neostigmine may have a negligible distribution in the central nervous system whereas it might readily gain intimate contact with the myoneural junction. In support of the view that the relative therapeutic efficacies of DFP and neostigmine are the result of differences in drug distribution throughout the body are the observations of Harvey et al. When large amounts of DFP were injected into the brachial artery of myasthenic patients, muscle strength and muscle action potentials were improved far more than by systemic administration of the drug. Thus, it may be assumed that when a sufficient amount of DFP gains access to the myoneural junction, muscle strength is improved almost but not entirely to the same extent as by neostigmine. Unfortunately, doses of DFP large enough to produce such improvement throughout the body cannot be given systemically because of the untoward effects of DFP in large doses upon the gastro-intestinal tract and nervous system.

A second explanation might be offered for the finding that neostigmine is more potent than DFP in the relief of myasthenic symptoms. Neostigmine may have in addition to its anticholinesterase properties a direct action upon skeletal muscle that is not shared by DFP. Few unequivocal experiments have been performed to settle the question of whether direct muscular effects are produced by anticholinesterase agents. So far as their effects upon the circular muscle of the iris is concerned, it has been shown by Anderson for physostigmine and more recently by Leopold and Comroe for neostigmine, and for DFP that these drugs become incapable of producing pupillary constriction when the iris is cut off from tonic parasympathetic impulses by ciliary ganglionectomy. So far as skeletal muscle is concerned, Langley and Kato were unable to detect any contraction of denervated gastrocnemius muscles following the application of physostigmine. However, Brown and Harvey noted that physostigmine produced increased contraction of the denervated extraocular muscles, although this effect was not noted when other skeletal muscles were employed. More recently Riker and co-workers stated that they have demonstrated a direct action of neostigmine upon striated muscle fibers. Clearly, further quantitative comparisons are needed

of the direct effects of physostigmine, neostigmine, and DFP upon skeletal muscle.

The fallacy of relating the effects of an anticholinesterase agent upon plasma cholinesterase to its pharmacodynamic actions has already been pointed out. The above studies show that it is equally fallacious to judge therapeutic efficacy by this criterion. Human plasma cholinesterase is more highly susceptible to inactivation by DFP than is human brain or muscle cholinesterase. Thus, even without considering the added complications of bodily distribution, plasma cholinesterase would be largely inhibited before tissue cholinesterases are significantly affected. Moreover, cholinesterases in different tissues vary so greatly in their rates of regeneration following inactivation by DFP that the enzymatic activity in one tissue cannot possibly be estimated from the analysis of another even though their susceptibilities to inactivation are similar. Thus, the measurement of the cholinesterase activity of erythrocytes affords no knowledge of the status of muscle or brain cholinesterase when DFP is given over a period of days even though the sensitivities of the enzymes at these varied sites fall in the same range.

It has been shown that the DFP-cholinesterase complex is not readily reversible and dilution has no effect upon this reaction. The authors have already pointed out the uncertainties in using the determinations of cholinesterase activity after neostigmine therapy; the in vitro analysis of cholinesterase values in blood taken following neostigmine administration may yield figures that are considerably above or below the actual enzyme activity in the body, depending upon numerous factors such as dilution, pH, and time.

The evaluation of DFP as a therapeutic agent in severe myasthenics is complicated by the fact that neostigmine protects cholinesterase from inactivation by DFP. Koster first demonstrated that animals which had received physostigmine were more resistant to the lethal actions of DFP. Leopold and Comroe have shown that previous ocular administration of physostigmine prevented the characteristic prolonged intense miotic action of DFP, administered at the time of maximal neostigmine miosis. A patient in this series could not be deprived of neostigmine for more than a few hours and it is possible that the presence of this reversible inhibitor blocked the effects of subsequently administered DFP. This fact may have some bearing on the failure of DFP in patients with myasthenic symptoms so severe that neostigmine can never be discontinued. Harvey and co-workers have confirmed this by demonstrating that the intra-arterial injection of DFP failed to produce its characteristic prolonged effect in patients who had received neostigmine a short time previously.

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From the practical point of view, DFP possesses one main advantage, namely its prolonged action. This may enable a patient to avoid marked fluctuations in strength during the daytime and to awaken in the morning with considerably less fatigue than if the short-acting neostigmine alone is used. In the authors' experience, the simultaneous use of DFP and neostigmine often resulted in a definite reduction of neostigmine dosage and this combination may prove to be useful in the treatment of myasthenia gravis. However, in view of the marked gastro-intestinal disturbances produced by DFP, it is obvious that a compound with a more specific action on the myoneural junction is desirable. Such an agent may be found among the many possible congeners of DFP which are under investigation.

The authors' experience from this study has been that an evaluation of the effectiveness of drugs in this disease can only be made after considerable experience in the design and interpretation of objective tests has been acquired. Spontaneous remissions in myasthenia are too frequent and unpredictable to permit assay by the patient's subjective impressions alone. Patients with myasthenia gravis want desperately to get well and the psychic effect of any new measure, medical or surgical, may be tremendous.

Conclusions: Di-isopropyl-fluorophosphate (DFP), although entirely unrelated chemically to neostigmine, is capable of lowering plasma and red blood cell cholinesterase activity in man to a marked extent and for prolonged periods, and of improving muscle strength in patients with myasthenia gravis.

In this series despite the fact that DFP lowered plasma cholinesterase to zero, it produced less improvement than did neostigmine. The potentialities of a drug for treating myasthenia gravis cannot be gauged clearly by its effect upon plasma cholinesterase.

DFP may be utilized in nontoxic doses to obtain its prolonged effect at the same time that neostigmine is used to obtain its characteristically stronger action. (Am. J. M. Sci., Dec. '46 - Comroe et al.)

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The Use of Radon Ointment in the Treatment of Late Irradiation Ulcers: There is no essential difference between the reaction caused by roentgen rays and those effected by radium. The dosage with either is planned so that the maximum safe reaction becomes manifest. If the skin tolerance is exceeded, ulceration and necrosis may occur. The ulcer may heal, but the tissues are atrophic and are susceptible to slight trauma. In such areas, late irradiation ulcers sometimes develop. The late changes due to irradiation are hyperpigmentation, or loss of pigmentation, sparseness or absence of hair, few or

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numerous telangiectases, diminished or absent activity of sweat and sebaceous glands and various degrees of skin atrophy, keratoses, late ulceration, or cancer.

Late irradiation ulcers occur from months to years after irradiation has been employed. The ulcers usually follow infection or trauma of a minimal nature to an area showing the stigmas of previous irradiation. In some cases, the trauma may be so minimal that the patient does not remember the incident. As a result of a diminished blood supply in the tissue, an ulcer forms which is indolent, usually quite painful and tender. The ulcers may become gangrenous and undergo malignant degeneration. The pain may be so intense that the patient may develop drug addiction and become a total invalid. In addition, the medical profession cannot afford to minimize the medico-legal aspects of the problem.

It long has been known that individuals vary in their susceptibility to irradiation and that different regions of the body manifest different responses to an erythema dose. The aged are usually less sensitive than infants, whereas females are usually slightly more sensitive than males. A coarse skin or anemic skin will react less rapidly than thin skin or skin possessing good color. Blondes are usually more susceptible than brunettes, and Negroes are most resistant. The scalp is the least sensitive area, and the face is probably the most sensitive. The extensor surfaces are more resistant than the flexor surfaces, but the flexures such as the axilla and groin are very sensitive. Chemical irritants enhance the irradiation effect. Finally, a small treatment area will tolerate considerably more irradiation than will a large area.

The initial response of the skin to irradiation is not always comparable with the delayed effects. An area of skin which shows a minimal initial susceptibility, as evidenced by the time of appearance and degree of erythema, may undergo late irradiation necrosis following a dose that more susceptible areas would tolerate with safety. Thus, relatively ischemic areas may break down, despite exhibition of only minor primary irradiation effects. This probably accounts for a certain irreducible percentage of late irradiation ulcers.

With the advent of heavily filtered, exceedingly high voltage irradiation (1000 kv.), it has been possible to deliver a dose proportioned for a tumor deep in the tissues with less effect on the skin than is obtained with the customary deep voltage (200 kv.) therapy. Despite the refinements in equipment and in technic, however, radiology departments throughout the country continue to see late irradiation ulcers, indicating the importance of dosage factors and individual susceptibility.

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The toll exerted on the early workers in the profession was the result of ignorance of the harmful possibilities of the rays. It is somewhat startling that, of 70 cases of irradiation injuries recently seen by Uhlmann, 35 were in physicians. Rather significant is the fact that only 3 of these 35 physicians were radiologists. Only 30 of these 70 persons received their injuries as a result of treatment with roentgen rays and radium; the remainder were injured in the course of diagnostic or technical work. Of the 30 cases resulting from therapy, in but 14 had therapy for malignancy been received. Of 37 cases of late irradiation ulcers reviewed by Davis, 27 had resulted from treatment for benign conditions, 6 had resulted from accidental irradiation during fluoroscopic procedures, and 4 had resulted from irradiation for malignancy. What better evidence is needed that most irradiation injuries are avoidable?

Until recently, these ulcers were notoriously refractory to medical treatment. The previous methods employed were varied, and the good results obtained were the exception rather than the rule. The use of the fresh whole leaf of Aloe vera gave more encouraging results than any previous nonsurgical method of therapy, but it failed to produce the anticipated high percentage of cures. Plastic repair was necessary in many cases as the only means of cure.

In 1930, Uhlmann first began to use radon ointment in the treatment of late irradiation ulcers and has since that time effectively demonstrated its value as a therapeutic agent. The active principle in the radon ointment is its high concentration of alpha particles and to a less extent beta particles and gamma radiations released by the atomic disintegration of the radon gas. Of 70 patients treated in this manner, only 2 were not cured, and these had residual carcinoma in their ulcers.

Radon Ointment Preparation. Radon ointment is prepared by dissolving radon under pressure in lanolin. Radon occurs normally in the gaseous state and is given off by radium prepared in the form of an aqueous solution of one of its salts. As the gaseous radon is formed, it bubbles up through the solution of radium and can be collected, purified, concentrated, and measured in a closed system.

Radium becomes radon by the spontaneous emission from its nucleus of an alpha particle. Alpha particles are fast traveling nuclei of helium atoms. They can be stopped by a sheet of paper; they can only penetrate tissue to a depth of from 0.030 to 0.050 mm., and are completely stopped by the material in the walls of the ordinary radium containers. Thus, when radium is used therapeutically in closed containers, the alpha particles do not encounter tissue. Eventually, they annex 2 electrons and become helium atoms.

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In less than 4 days, one-half of a given amount of radon, by each molecule losing an alpha particle, will have disintegrated into a new element of lower atomic weight, Radium A. Even more rapidly, Radium A loses an alpha particle and becomes Radium B. This disintegrates in a matter of minutes to Radium C through the spontaneous emission of beta and gamma radiations.

The beta particles produced by the disintegration of Radiums B and C are high speed electrons which can penetrate tissue to a depth of 15.4 mm., but are stopped, as are the alpha particles, by the walls of the ordinary radium containers now in use. The gamma rays, which are the rays commonly employed in radium therapy, are electromagnetic in nature, with properties similar to light. They correspond to roentgen rays, but are much shorter in wave length and are much more penetrating, only 50 per cent being absorbed by 13 cm. of tissue.

Commercial radon contains radon and Radiums A, B, and C, and continues to emit alpha, beta and gamma radiation, in unvarying fixed proportions for 30 days. Each day it loses 18 per cent of its strength of the previous day. During the entire period of its activity, 90 per cent of its emissions are alpha particles.

The question will naturally arise in the reader's mind about why the gamma rays being emitted from the radon ointment will not produce still further damage to the tissue already injured by overexposure to this type of irradiation. Three factors are involved in explaining this apparent therapeutic paradox:

1. The amount of radon incorporated into the ointment is very small. The absolute concentration of gamma radiations emitted from the ointment during an 8-hour application in commonly employed therapeutic strength (200 e.s.u.) is 3.3 x 10 millicurie hours, as contrasted with 5000 millicurie hours commonly employed in the treatment of carcinoma of the cervix.

2. Due to its great penetrability, only a small amount of the gamma radiation is absorbed in the most superficial layers of the treated tissue.

3. Ninety per cent of the radiation is composed of alpha particles. In the superficial layers of tissue where all the energy from the alpha rays is absorbed, the amount of energy absorbed from the alpha rays is more than 10,000 times that absorbed from the gamma rays.

Thus, the treated area receives an insignificant amount of gamma radiation and a high concentration of alpha radiation.

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At the present time, nothing is known concerning the mode of action of radon in promoting the healing of ulcers. It is believed that capillary proliferation is stimulated in the ordinary avascular bed of the ulcer. Griffith has shown that radon ointment applied to the skin causes an increase in the cutaneous capillary count. (Am. J. M. Sci., Oct. '46 - Kirsh et al.)

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The Functional Use of Color and Its Contribution to Safety: In the Transactions, 21st Annual Conference and Exhibit of the Western Pennsylvania Safety Council and American Society of Safety Engineers, Western Pennsylvania Chapter, 23, 24, and 25 April 1946, Mason discusses the functional use of color and its contribution to safety. The author begins with consideration of the physical nature of color and the psychological and physiological effects of color on persons, leading up to the new science of color dynamics. The specific subject of use of color in the factory is then considered. Red, orange, yellow and their shades such as buff, beige, etc. appear to bring the colored objects forward in addition to brightening them, while blue and green are receding and restful colors. Therefore, operating parts of machines should be painted in bright colors and the nonfunctional parts in a rather dull green. Orange and yellow should also be used for trucks and other mobile equipment, for stationary obstructions, and for switch boxes and unguarded danger spots. Regarding walls and ceilings, the author classifies surfaces to be colored as follows: (1) morale building; (2) eye rest; (3) receding; and (4) reflecting. Yellow is cheerful and is good on walls, unless the temperature is high, in which case blue may be used as a cooling color. A color that will rest the eye and contrast with the color of the working material must be chosen for walls in the worker's field of vision. Beams, bracings, pipes, etc., that are not obstructions should be painted a receding color. In any case, monotony should be avoided. If indirect lighting is used, ceilings should reflect 75 per cent of the light striking them, and walls should reflect from 50 to 60 per cent. Floors should be considered in the color scheme; white is best on dark floors, and in general, yellow and orange on light floors. However, aisles where trucks operate, should have a contrasting color. (Indust. Hyg. Digest., Dec. '46)

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(Not Restricted)

The Wire Mesh Glove in Accident Prevention: Christianson, in the November 1946 issue of Safety Engineering tells the story of the invention and development of the wire mesh glove used in the packing industry by meat cutters. The inventor, Miss Frances Silbaugh, was a nurse with a packing company and was greatly concerned with the problem of frequent cut fingers

(Not Restricted)

until the sudden sight of a woman's mesh bag brought a solution. At first it was difficult to make the gloves fit, but the problem was soon solved and now the gloves are in general use. (Indust. Hyg. Digest., Dec. '46)

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(Not Restricted)

Vitamin Retention of Canned Foods: Studies have been made of the vitamin retention in canned foods as produced under commercial canning practices. The investigation involved nine vegetables and one fruit, and the canning procedures of twenty-seven different canning establishments. A total of eighty-nine different samplings of foods was subjected to vitamin analysis. Samples were taken for vitamin assay as the products entered the canning line and again when the finished product emerged from the cooling canal and, frequently, at intermediate stages along the canning line. These samples were assayed by recognized methods for two or more of the following vitamins: ascorbic acid, carotene, thiamine, riboflavin and niacin. Samples were also analyzed for dry matter. The following observations, expressed in the tabulation below, were made:

Vitamin Retention

	Excellent	Good	Fair	Poor
ASCORBIC ACID	tomatoes tomato juice	cherries carrots	asparagus corn spinach	snap beans lima beans peas
CAROTENE	asparagus cherries spinach tomatoes	carrots corn peas tomato juice	snap beans	
THIAMINE	tomatoes	tomato juice	asparagus carrots	snap beans lima beans corn peas spinach
RIBOFLAVIN	asparagus tomatoes tomato juice		lima beans corn peas spinach	snap beans
NIACIN	asparagus spinach tomatoes tomato juice		carrots corn	lima beans peas

(J. Nutrition, Oct. '46 - Guerrant et al.)

(Not Restricted)

Dental Caries Possibly Caused by Certain Drinking Waters: It is now generally recognized that children who consume drinking waters containing from 1 to 2 p.p.m. of fluoride during the first decade of life experience less dental caries than do comparable children consuming nonfluoride waters. It is the purpose of the present note to describe findings which suggest that drinking waters may contain deleterious factors which favor tooth decay.

During the winter and spring of 1946 a total of more than 3,000 school children were examined in five communities of southern New Jersey. In three of these communities the water supplies contain from 1.4 to 2.2 p.p.m. of fluorine, but the remaining two communities have water supplies which are considered fluorine-free.

Of the approximately 3,000 children, 1,307 were born in localities outside the five communities studied, but had migrated at various ages into the several communities where the examinations were made. Those migrating into the fluorine areas and consuming the fluoride waters continuously since first arrival totaled 882, and those migrating into the nonfluorine areas and consuming the nonfluoride waters continuously totaled 425.

The rate of caries incidence for the present study is defined as the number of teeth of the permanent (second) dentition showing evidence of past or present dental caries (decayed, missing, or filled) per 100 person-years of age. The findings are given in the table.

NUMBER OF DECAYED, MISSING, AND FILLED (DMF) TEETH PER 100 PERSON-YEARS OF AGE FOR MIGRANTS INTO FLUORIDE AND NONFLUORIDE AREAS OF NEW JERSEY*

Age (years) at time of survey	Area in New Jersey	Duration of exposure (years)		
		0-4	5-9	10-14
5-9	Fluoride	8.6	5.5	†
	Nonfluoride	19.3	20.3	†
10-14	Fluoride	36.7	22.2	15.5
	Nonfluoride	37.6	44.3	57.5
15-19	Fluoride	56.6	43.5	33.3
	Nonfluoride	49.6	61.1	70.0

* Data based on observation of 1,307 migrants of both sexes of specified ages and of specified duration of continuous exposure to the city water in the specified areas.

† No observations.

The data clearly show that the sooner after birth a child arrives in the fluoride area and begins a continuous exposure to fluoride water, the lower the incidence of caries. From these findings the conclusion is reached that, for migrants, the drinking of fluoride waters is associated with a lower incidence of dental caries. At the same age, the migrants protected most are the earliest to arrive (longest exposed); those protected least are the most recent arrivals (shortest exposed). In contrast, migrants into the nonfluoride area present a strikingly different picture. Among such migrants, those who are the most recent arrivals have the best teeth (lowest incidence of caries), but those who have been in the nonfluoride area the longest time have the worst teeth (highest incidence of caries).

(Not Restricted)

These several findings strongly suggest that, just as there are factors in drinking water which favor resistance to tooth decay, there may be factors in drinking water which make the teeth more vulnerable to dental caries. Search for the principles in the nonfluoride waters responsible for the described effects is now actively under way. Superficial examination indicates that the nonfluoride waters in this area are acid enough to require treatment with alkali, and they contain excess iron to such an extent that aeration is required to remove it. Preliminary chemical analysis indicates an unusually high content of nitrates, constituting more than one-half of the fixed residue. (Science, Jan. 3, '47 - Klein)

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(Not Restricted)

Change in the Regulations for Transfer to USN and New Age Table: Alnav 632-46 which follows makes important changes in the eligibility of Reserve officers for transfer to the USN:

This Alnav refers to the regulations to govern the transfer of Reserve and temporary officers of the Navy and the Marine Corps pursuant to Public Law Number 347 approved 10 May 1946. Change Number 3 approved 11 December 1946 increases the age limits in all ranks by three years for officers applying for transfer in the Medical, Dental, Hospital, and Medical Allied Sciences Corps, and officers applying for transfer as legal specialists. For officers in the above categories the requirement that an application must be submitted within six months from release to inactive duty or resignation is cancelled. Officers who are now eligible for transfer under the increased age limits will not lose precedence as a result of having been on inactive duty provided they apply for transfer prior to 1 March 1947. All Commands and all Reserve activities are directed to give this wide publicity.

AGE TABLE - BUPERS CIR. LTR. NO. 288-45 (REV.)
(As revised by ALNAV 632-46)

Applicant Must NOT Have Attained the Age Shown on 1 January 1945

Rank	Date of Rank	Line	EDO	Medical, Dental Corps	Supply Corps	Chaplain Corps	Civil Engineer Corps
		Age	Age	Age	Age	Age	Age
Lt. Cdr.	9/8/39 - 2/29/44	35	37	43	37	42	38
Lt. Cdr.	3/1/44 - 3/14/44	34	36	42	36	41	37
Lt. Cdr.	3/15/44 - 10/16/44	33	35	41	35	40	36
Lt. Cdr.	10/17/44 - 7/19/45	32	34	40	34	39	35
Lt. Cdr.	7/20/45 - 10/1/45	31	33	39	33	38	34
Lieut.	9/8/39 - 6/30/44	31	33	39	33	38	34
Lieut.	7/1/44 - 10/1/45	30	32	38	32	37	33
Lt. (jg)	9/8/39 - 8/31/44	30	32	38	32	37	33
Lt. (jg)	9/1/44 - 10/1/45	29	31	37	31	36	32
Ensign	9/8/39 - 6/6/44	29	31	---	31	---	31
Ensign	6/7/44 - 6/5/45	28	30	---	30	---	30
Ensign	6/6/45 - 10/1/45	27	29	---	30	---	30

*Equally applicable to Hospital Corps & Medical Allied Sciences Corps.

All Reserve medical officers, all Reserve dental officers, and all officers of the Reserve who qualify for appointment in the Medical Allied Sciences Corps

(Not Restricted)

previously excluded from the provisions of the transfer program by reason of age or time limitations, whose eligibility for transfer is established by the revisions set forth in the above directive, are urged to communicate with the Bureau of Medicine and Surgery or the Commandant of their home naval district in connection with application for transfer appointment in the regular Navy. (M. D. Willcutts, Assistant Chief of BuMed for Professional and Personnel Operations)

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(Not Restricted)

Guest Lecturers at the U.S. Naval Dental School, National Naval Medical Center, Bethesda, Maryland: The U. S. Naval Dental School sponsors the presentation of several outstanding men in the field of the dental sciences each month. All active and inactive duty dental and medical officers of the various federal services plus civilian dentists and physicians who are affiliated with accredited professional societies are extended a cordial invitation to attend any or all of these lectures.

The following are the guest lecturers and the subjects which were scheduled for January 1947:

Jan. 10 - Daniel F. Lynch, D.D.S. - "The Technic of Surgical Flaps." Dr. Lynch has had wide experience in the specialty of Oral Surgery, both in civilian practice and in the naval service during the war. He holds the rank of commander, Dental Corps, USNR.

Jan. 17 - Thomas Forde, D.D.S. - "Bite Correction." Dr. Forde appeared on the program in December and his subject was so enthusiastically received and is so broad that he has been invited to continue his lecture on this date. He will discuss bite correction of natural teeth.

Jan. 21 & 22 - Isaac Schour, D.D.S. - "Current Problems in Preventive Dentistry with Special Reference to the Control of Dental Decay." Dr. Schour is Associate Dean of Postgraduate Studies and Professor of Histology and head of that department at the University of Illinois College of Dentistry, Chicago, Ill. He is also the author of textbooks and many articles in this field. He will lecture at 1000 and 1300 each day in Conference Room 244. The lecture on 21 January will be repeated on 22 January.

(Not Restricted)

Jan. 24 - Hayes Martin, M. D. - "Mouth Cancer." Dr. Martin is Chief of the Head and Neck Department of Memorial Hospital, New York City. He has written and lectured extensively and is admirably qualified to present this most important subject. His topic should be of special interest and concern to all who practice dentistry. The lecture will begin at 1300 and will be held in the Main Auditorium of the National Naval Medical Center.

Jan. 28, 29, & 30 - S. S. Wald, D.D.S. - "Dental Roentgenology." Dr. Wald is Assistant Professor of Roentgenology at New York University College of Dentistry, and lecturer in Roentgenology at New York University College of Medicine. He is the author of "Manual of Dental Roentgenology" and the co-author of "Clinical Dental Roentgenology." Dr. Wald has had broad experience as a teacher and in the practice of dentistry both in civilian life and in the Navy. He holds the rank of captain, Dental Corps, USNR. Dr. Wald will lecture to dentists and physicians on January 28th at 1000 and at 1300. His subjects will include X-ray Technic, Dark Room Procedures, Interpretation of Dental Roentgenograms. Meetings will be held in Conference Room 244.

On January 29th and 30th at 1000 and 1300 he will lecture and demonstrate to enlisted personnel of the Navy only. Dental officers of the Navy are urged to send their dental technicians to attend one of these two days. Meetings with dental technicians will be held in Lecture Room Naval Dental School Annex.

Jan. 31 - Andrew Ackerman, D.D.S. - "Surgical Prosthesis of Oral Cavity." Dr. Ackerman is head of the Surgical Prosthesis Department of Memorial Hospital, New York City. He is an outstanding authority in the field of Surgical Prosthesis. In his lecture he will demonstrate with slides and movie film. The meeting will be held in Conference Room 244 at 1300.

(Dental Div., BuMed)

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(Not Restricted)

Applications for Eligibility for Examination for Certification by Various Specialty Boards: It is urgently recommended that medical officers who have applied for eligibility for examination by any Specialty Board notify the Professional Division of the Bureau of Medicine and Surgery immediately when they have applied for examination.

This does not in any way change the present plan of medical officers applying directly to the Specialty Boards. It is emphasized again that medical officers must deal directly with the Specialty Boards and not via the Bureau of Medicine and Surgery.

It is also urgently requested that medical officers notify the Professional Division of the Bureau of Medicine and Surgery when they have been made eligible for examination by a Specialty Board, and the date they will take the examination. It is essential that the Bureau be kept cognizant of these facts since they provide information of extreme importance to the Training Program. (Professional Div., BuMed)

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(Not Restricted)

Training in Chest Diseases: The Bureau of Medicine and Surgery is making plans for the training of medical officers in diseases of the chest. This training will be for internists rather than surgeons, although requests for training in surgery of the chest may be submitted at any time.

It is contemplated that training will be on an individual basis in a civilian institution. It is planned to have the training individualized for the officer rather than obtain formal courses in chest diseases. In the case of some officers it may be necessary to recommend residency-type training in Internal Medicine prior to specialization in diseases of the chest, depending on previous training and experience in this field.

Requests are desired from medical officers of the regular Navy to reach BuMed prior to 1 March 1947 in order to plan more effectively the training program for the next fiscal year. A service agreement is required if the training is to be of six months or longer duration in a civilian institution. Requests may be submitted by despatch. (Professional Div., BuMed)

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(Not Restricted)

Civilian Postgraduate Instruction for Dental Officers: A limited number of dental officers are to be nominated at an early date for short postgraduate courses of instruction at civilian dental colleges. All dental officers on active

(Not Restricted)

duty are eligible to submit requests for courses of their own choosing. It is necessary that applicants comply with paragraph 1361 Manual of the Medical Department in detail.

The following policy will govern the selection of candidates:

(a) Candidates should have completed at least one tour of duty at sea or beyond the continental limits of the United States. (A tour may be any number of months.)

(b) Candidates should have aptitude for the courses of instruction desired.

(c) Requests will be granted for courses to commence at about the time the candidates are normally due to be transferred.

(Dental Div., BuMed)

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(Not Restricted)

Postgraduate Training: A review of the training needs for the next fiscal year reveals a shortage of medical officers trained in Urology. There are several approved residencies in the teaching hospitals at this time. The younger group of medical officers who are considering entering Surgery should bear in mind that all officers cannot become surgeons. This notice is directed particularly to those who are surgically inclined, and it is desired to point out that such specialties as Urology and Otolaryngology offer many more opportunities for training than General Surgery.

Requests are desired from medical officers of the regular Navy for training in Urology. There are available places for training in civilian institutions and in Naval hospitals. Requests should be submitted as outlined in the Bumed News Letter dated 24 May 1946, page 23. (Professional Div., BuMed)

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(Not Restricted)

Reserve Medical Officers Needed for Combat Air Group Training Course: Reserve Medical Officers will be needed for a two weeks' training course of Navy and Marine combat air groups of the Naval and Marine Air Reserve Training Commands. It is anticipated that the first of these periods will occur in the month of June, 1947. Interested officers below the rank of Captain are invited to communicate with the Staff Medical Officer of CNAResTra, NAS, Glenview, Ill., stating geographic area where duty is desired, and the date which will be most convenient to attend. (Personnel Div., BuMed)

(Not Restricted)

Attention Naval Reserve Officers:

Opportunity for Active Duty. The attention of Reserve medical officers and of pharmacists is invited to the opportunity to return to active duty at one of the major naval air stations of the Naval Air Reserve Training Command or at one of the Naval Air Reserve Training Units (NARTUs) listed below:

Present Vacancy (for M.O.'s)	Location
1	NAS, Atlanta, Ga.
0	NAS, Columbus, Ohio
1	NAS, Dallas, Texas
2	NAS, Glenview, Ill.
2	NAS, Grosse Ile, Mich.
0	NAS, Los Alamitos, Calif.
1	NAS, Memphis, Tenn.
1	NAS, Minneapolis, Minn.
2	NAS, New Orleans, La.
0	NAS, New York, N. Y.
1	NAS, Oakland, Calif.
2	NAS, Olathe, Kas.
1	NAS, Squantum, Mass.
2	NAS, St. Louis, Mo.
1	NAS, Willow Grove, Pa.
2	NAS, Denver, Colo.

Naval Air Reserve Training Units based at

0	NAS, Anacostia, D.C.
1	NAS, Jacksonville, Fla.
1	NAS, Miami, Fla.
0	NAS, Norfolk, Va.
0	NAS, San Diego, Calif.
1	NAS, Seattle, Wash.

Reserve medical officers and pharmacists who are interested in active duty at one of the stations or units listed above should initiate letters to the Bureau of Naval Personnel, via the Chief of Naval Air Reserve Training, Naval Air Station, Glenview, Ill., and BuMed, listing three or four stations at which duty is desired in order of preference. Personnel are desired in ranks not above that of commander in the Medical Corps.

Officers qualifying for the above billets are advised that, consistent with the needs of the Service, every effort will be made to continue them in their

(Not Restricted)

assignments. Certain of the above billets carry orders to duty involving flying for designated naval flight surgeons. Government quarters are available at many of the major naval air stations.

Active Organized and Volunteer Reserve. Naval flight surgeons and qualified aviation medical examiners of the Reserve who are desirous of affiliating themselves with either the Organized or Volunteer components of the Inactive Reserve composed of Naval and Marine air groups training at one of the Naval air stations or NARTUs listed should contact the Commanding Officer of the station or the NARTU at which the training unit is based. (Personnel Div., BuMed)

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Important Changes in Eligibility for Transfer to USN: (Not Restricted) See Alnav, new age table, and supplementary note on page 20.

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Public Health Foreign Reports: (Not Restricted)

Disease	Location	Date	No. of Cases
Cholera	China, Formosa	Sept. 1-30, '46	424 (214 fatal)
	Kwangtung Prov.	Oct. 1-10, '46	83 (24 fatal)
Plague	Argentina, Buenos Aires	(date report) Dec. 3, '46	9 (3 fatal)
Smallpox	China, Hong Kong	Nov. 16-23, '46	196
	Colombia	October '46	88 (3 fatal)
Typhus Fever	Belgian Congo	Nov. 2-9, '46	43
	Colombia	October '46	72 (3 fatal)
Yellow Fever	French Equatorial Africa, Ubangi Shari Dept., Carnot	Nov. 23, '46	1 (fatal)
		Nov. 25, '46	2 (suspected - fatal)

(Pub. Health Reps., Dec. 20, '46)

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To: All Ships and Stations 10 Dec 1946 (Not Restricted)

Subj: U.S. Naval Hospital, Sampson, N.Y. - Disestablishment of; U. S. Navy Administrative and Disestablishment Unit, Sampson, N.Y. - Establishment of

1. The following activity is disestablished effective 15 December 1946:

U.S. Naval Hospital
Sampson, New York 3435-748

2. Effective 15 December 1946 the following activity is established under a medical officer in command and designated:

U.S. Navy Administrative and Disestablishment Unit
Sampson, New York 1102-700

This is an activity of the Third Naval District under the management and technical control of the Bureau of Medicine and Surgery. The purpose of the Administrative and Disestablishment Unit is to implement the disestablishment of the naval hospital and to facilitate the administration of the naval personnel of the hospital staff retained during the period of transfer of the hospital to the Veterans' Administration.

3. Bureaus and offices concerned take necessary action.

--SecNav. James Forrestal

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Circular Letter 46-183 23 December 1946 (Not Restricted)

To: All Ships and Stations.

Subj: Declassification of Certain Technical Memoranda and Issues of the Bumed News Letter Aviation Supplement.

1. All Aviation Psychology matters appearing in the following publications are hereby downgraded to unclassified:

(a) Aviation Psychology Technical Memoranda, Nos. 1, 2, 3, 4, 5, 6, and 7.

(Not Restricted)

(b) Bumed News Letter Aviation Supplements, Vol. 1, No. 2; Vol. 2, No. 13; Vol. 4, Nos. 2, 9, and 10; and Vol. 6, Nos. 10, 11, and 12.

--BuMed. C. A. Swanson

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Circular Letter 46-184 30 December 1946 (Not Restricted)

To: All Ships and Stations.

Subj: Material Requirements for Medical Department Activities, screening of.

Ref: (a) BuMed Circular Letter 45-23 of 23 Jan 1945.

1. Recent trends in the issue of medical stores from the several Medical Supply Depots indicate that individual officers concerned with the preparation of requisitions and estimation of requirements for field activities are not taking into consideration the following criteria, as applicable, in many instances:

(a) Reduction in patient load at Naval Hospitals and large dispensaries.

(b) Change over from the former Medical Supply Catalog to the Catalog of Navy Material, BuMed Section wherein units of issue are larger, i.e.: one to dozen; 1/4 lb. bottle to 1 lb. bottle, etc.

(c) Adjusting past issue or usage rates in ledgers to conform to larger units of issue.

(d) Compliance with reference (a) which established a "maximum stock" of six (6) months; a "minimum stock" of three (3) months and adequately describes the "order point" for all Medical Department shore activities (Continental).

(e) Notation in the catalog that certain items are "For special assemblies or field use". This notation precludes issue to other than Marine Corps or special Naval detachments or units.

(Not Restricted)

(f) Establishing a realistic estimate of requirements for "new items". Filling of the pipe line for new items requires distribution of large quantities in order to make such items available Navy wide. Accordingly, estimates of requirements for new items should be made on a most conservative basis.

2. At the present time there is an acute shortage of many items of Medical Stores in the commercial market. This condition has resulted in short supply of many common items and inability to procure many new items.

3. Strict conservation measures shall be instituted immediately in the requisitioning, control and use of the following general classification of materials:

(a) Infant paraphernalia.

(b) Cotton fabrics, bandages, dressings, elastic bandages, rubber goods, glass utensils.

(c) X-ray film, sensitized paper (ECG and BMR charts).

(d) Stainless steel products.

(e) Laboratory reagents.

(f) Specialized specific medications.

4. The contents of this letter shall be brought to the attention of all officers and personnel having cognizance of requisitioning, control of issue, and use of Medical Stores in the Field.

--BuMed. C. A. Swanson

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Circular Letter 46-185 31 December 1946 (Not Restricted)

To: Comdts., ND's (except 10, 14, 15, & 17) and RivComs.

Subj: BuMed Property, Removal of from Naval Vessels, Modification of Instructions.

(Not Restricted)

Refs: (a) AlNav 19-43, January 1943.
(b) AlNav 568-46, October 1946.
(c) BuMed ltr BUMED-T-QB/L11-3, dtd 7 Sep 1945.

This letter from the Chief of BuMed constitutes a revision of paragraph 1(c)(5) of the instructions, reference (c), to the officers in charge of Medical Clearance Teams.

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Circular Letter 46-186 31 December 1946 (Not Restricted)

To: All Ships and Stations

Subj: Midshipmen and Naval Reserve Officers Training Corps Graduates, physical standards for.

This letter from the Chief of BuMed directs that certain changes in relation to the subject be made in the Manual of the Medical Department.

A copy of this letter has been sent to all addressees and others who officially hold copies of the last issue of the Manual of the Medical Department.

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Circular Letter 46-187 31 December 1946 (Not Restricted)

To: All Navy and Marine Commands having Dental Departments

Subj: Annual Dental Report

Ref: (a) Par 5130, Manual of the Medical Department, U. S. Navy

1. Reference (a) requires that an Annual Dental Report be submitted by dental officers in charge of dental activities. It is directed that the following stock numbers be used in lieu of the obsolete stock numbers now listed in "H" of the outline of the Annual Dental Report in subparagraph 5130.2.

5-005-010	Amalgamator, Mechanical, 110V-60C, AC
5-013-510	Aspirator, Mobile, 110V-60C, AC
5-017-050	Bench, Prosthetic Laboratory
5-111-005	Cabinet, Dental instrument

(Not Restricted)

5-116-350	Casting Machine, Large
5-143-000	Chair, Dental operating
5-174-015	Compressor, Air, with 8 gal. tank, 110V-60C, AC
5-175-008	Compressor, Air, with 40 gal. tank, 110V-60C, AC
5-179-550	Converter, Rotary, DC to AC
5-252-500	Engine, Dental Bench, 110V-60C, AC
5-253-008	Engine, Dental Mobile, 110V-60C, AC
5-327-500	Furnace, Laboratory, Muffle Type, 110V, AC-DC
5-385-050	Lamp, Dental operating, with 16" Extension Arm, 110V, AC-DC
5-389-150	Lathe, Dental Laboratory, 110V-60C, AC
5-389-250	Lathe, Dental Laboratory, Polishing 110V-60C, AC
5-390-750	Collector, Dust, Four Hood Capacity, 110V-60C, AC
5-421-475	Unit, Dental, 110V-60C, AC (Ritter)
5-644-050	Trimmer, Model, 110V-60C, AC
6-124-920	Unit, X-Ray, dental, 110V-60C, AC
6-167-250	Tank, Developing, Dental Films
6-167-400	Tank, Developing, Radiographic, Refrigerated, non-splash proof, 110V-60C, AC
7-084-525	Sterilizer instrument, 110V, AC-DC

2. Any other equipment on hand of a value of $50.00 or more, shall be listed after stock number 7-084-525.

3. In addition to providing information which the Bureau of Medicine and Surgery desires, the Annual Dental Report, gives dental officers in charge of dental activities the privilege of discussing subjects of concern or interest, and the opportunity to make recommendations for the improvement of the dental service of the Navy. The report should therefore be carefully compiled, and in such manner as to be comprehensive, logical, concise and adequate.

By direction of the Chief, BuMed: A. G. Lyle

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Circular Letter 46-188 31 December 1946 (Not Restricted)

To: MOIC, All Naval Hospitals; National Naval Medical Center, Bethesda, Md.; Naval Dispensary, 12th ND, San Francisco, Calif.; Naval Dispensary, Washington, D. C.; Naval Dental Clinic, Brooklyn, N. Y.; Naval Fleet Service Dispensary, Pearl Harbor, T.H.; Naval Medical Center, Guam-Saipan (not include NMSD); Naval Medical Supply Depot, Brooklyn, N.Y.; Naval Medical Supply Depot, Oakland, Calif.; USN Military Government Hospitals.

Subj: Annual Estimates of Expenditures, FY 1948.

Ref: (a) BuMed ltr BUMED-Fa-HFM-hwl, L1-2/EN10(073), dtd 7 July 1945 (NavMed 8-55 Reprint of NavDept Bulletin 45-801, 15 July 1945.)

Encls:* 1. (HW) Schedule "A" Analysis of expenditures and estimates by Programs.
2. (HW) Schedule "B" Quarterly apportionment 1948 estimates by program subobjects.
3. (HW) Schedule "C" Personal Services.
4. (HW) Schedule "D" Itemized Estimates for subobjects.
5. (HW) Schedule "E" Annual Work Request Project Estimates.
6. (HW) Schedule "F" Specific Work Request Project Estimates.
7. (HW) Schedule "A-1" Logistic data sheet.
8. (HW) Schedule "G" Inventory of Motor Vehicles.
9. (HW) Example "A".
10. (HW) Example "B".
11. (HW) General Instructions "A".

1. The enclosed instructions shall be used for preparing FY 1948 estimates under this Bureau's appropriation. It is anticipated that the title of the appropriation "Medical Department, Navy" will be changed to "Medical Care." Attention is invited to the fact that there will be 366 days in the Fiscal Year 1948.

2. The estimates from field activities shall be returned so they will reach the Bureau on or before 1 March 1947.

(H. L. Pugh, Deputy and Assistant Chief of BuMed)

*Copy of enclosures not reprinted in Bumed News Letter because of limitations of space and applicability.